

SHRIMATHI DEVKUNVAR NANALAL BHATT VAISHNAV COLLEGE FOR WOMEN
(AUTONOMOUS)

(Affiliated to the University of Madras and Re-accredited with 'A+' Grade by NAAC)

Chromepet, Chennai - 600 044.

B.Sc.PBPBT - END SEMESTER EXAMINATIONS - APRIL 2025

SEMESTER - V

20UPBCT5009 - Genetics and Plant Breeding

Total Duration : 2 Hrs.30 Mins.

Total Marks : 60

Section B

Answer any **SIX** questions ($6 \times 5 = 30$ Marks)

1. State the principles of segregation and independent assortment in Mendelian genetics.
2. What are mutations? Explain their types with examples.
3. What is the Hardy-Weinberg principle? Explain its significance in population genetics.
4. Describe how hybridization is applied in plant breeding to improve crop traits.
5. Describe the structure and function of chromosomes.
6. How do plastids contribute to maternal inheritance? Explain with examples.
7. How does gene therapy help in treating genetic disorders?
8. What is polyploidy? Explain its role in plant breeding.

Section C

Answer any **THREE** questions ($3 \times 10 = 30$ Marks)

9. Explain incomplete dominance and co-dominance with examples.
10. Discuss the mechanisms of sex determination in plants.
11. What is extra-nuclear inheritance? Explain with examples such as male sterility in corn.
12. Analyze the role of mutations in evolution.
13. Critically evaluate the role of heterosis in plant breeding. How do this approach contribute to crop improvement?
